OIPE JC24
JUN 17 2004
PATENT & TRADEMARK OFFICE

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re application of	:	**Confirmation No. 2735**
Fujio MORI	:	Docket No. 2000_0938A
Serial No.09/582,790	:	Group Art Unit 1773
Filed July 5, 2000	:	Examiner UHLIR, Nikolas J

IN-MOLD DECORATING SHEET AND
IN-MOLD DECORATED ARTICLE USING
THE SAME

APPELLANT'S BRIEF UNDER 37 C.F.R. 1.192

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

THE COMMISSIONER IS AUTHORIZED TO CHARGE ANY DEFICIENCY IN THE FEES FOR THIS PAPER TO DEPOSIT ACCOUNT NO. 23-0975

Sir:

This is an appeal from the final rejection of claims 22-43.

1. REAL PARTY IN INTEREST

The real party in interest is NISSHA PRINTING CO., LTD. of Kyoto, Japan.

2. RELATED APPEALS AND INTERFERENCES

There are no related appeals or interferences.

3. STATUS OF CLAIMS

Claims 1-21 are cancelled.

Claims 22-43 are finally rejected.

4. STATUS OF AMENDMENTS

No amendment has been filed subsequent to the Final Rejection mailed September 16, 2003.

06/21/2004 WABDELR1 00000044 09582790 330.00 OP
02 FC:1402

5. SUMMARY OF THE INVENTION

According to a first aspect, the invention pertains to a decorating sheet 3 that exhibits properties such that the decorating sheet will not break during an injection molding operation when subjected to heated molten resin, and such that the decorating sheet can be easily worked into a maintainable three-dimensional configuration. Specifically, with reference to Figure 17, and page 14, line 21, through page 15, line 12 of the substitute specification, along with lines 19 - 26 on page 15 of the substitute specification, the decorating sheet 3 includes a substrate sheet 31 and a backing sheet 33, and exhibits the following characteristics

> (i) when a 10 mm wide test specimen of the decorating sheet is fixed between a pair of chucks at a chuck-to-chuck distance of 5 mm and then a load is applied at a constant rate of 500 mm/min to the test specimen at one end thereof under a temperature of from 62°C to 94°C, the test specimen exhibits a tensile strength at breakage thereof of at least 23 gf, and
>
> (ii) properties of the decorating sheet change in response to being subjected to a temperature from 40°C to 200°C, and when a 10 mm wide test specimen of the decorating sheet is fixed between a pair of chucks at a chuck-to-chuck distance of 5 mm and then a load of 20 gf is applied at a constant rate of 500 mm/min to the test specimen at one end thereof under a temperature from a first temperature within the range from 40°C to 200°C to a second temperature at which the decorating sheet decomposes, the test specimen exhibits a tensile elongation at breakage of at least 130%.

According to a second aspect, the invention pertains to a method of manufacturing a decorating sheet having the above characteristics (i) and (ii). With reference to page 39, lines 8 - 18 of the substitute specification, the method comprises

> forming a pattern layer on one of a backing sheet and a substrate sheet by laminating a carrier sheet, exhibiting a dimensional change of within 0.6% under a temperature of 90°C, onto the one of the backing sheet and substrate sheet; and
>
> covering the pattern layer with the other of the backing sheet and the substrate sheet such that the pattern layer is between the substrate sheet and the backing sheet.

According to a third aspect, the invention pertains to another method of manufacturing a decorating sheet having the above characteristics (i) and (ii). With reference to page 40, line 18 through page 41, line 3 of the substitute specification, this method comprises

> transferring a pattern layer from a carrier sheet, exhibiting a dimensional change of within 0.6% under a temperature of 90°C, to one of a substrate sheet and backing sheet by
>
> (i) laminating onto the one of the substrate sheet and backing sheet the carrier sheet such that the pattern layer is between the carrier sheet and the one of the substrate sheet and backing sheet, and
>
> (ii) removing the carrier sheet from the pattern layer; and
>
> covering the pattern layer with the other of the backing sheet and the substrate sheet such that the pattern layer is between the substrate sheet and the backing sheet.

According to a fourth aspect, the invention pertains to a decorated article. With reference to Figures 21 - 23, and page 44, line 11 through page 46, line 2, of the substitute specification the decorated article is formed by positioning a decorating sheet, having the above characteristics (i) and (ii), in an injection mold including a movable die 35 and a stationary die 36, closing the injection mold, injecting molten resin 40 into the injection mold, and cooling and solidifying the molten resin into a solid body such that all or part of the decorating sheet is integrally bonded to the solid body.

6. ISSUES

I. Whether claims 22-28, 33-36 and 43 are unpatentable under 35 U.S.C. § 103(a) over Mori et al. (JP '397).

II. Whether claims 29-32, 37 and 38 are unpatentable under 35 U.S.C. § 103(a) over Mori et al. (JP '397) in view of Lau et al.

III. Whether claims 39-42 are unpatentable under 35 U.S.C. § 103(a) over Mori et al. (JP '397) in view of Kitamura et al. (JP '085).

7. GROUPING OF CLAIMS

For purposes of this appeal, the claims are grouped as follows.

GROUP I - 22 - 28 and 33 - 36

GROUP II - 39 and 40

GROUP III - 41 and 42

GROUP IV - 43

Each claim of each group is considered to stand or fall together with each other claim of its respective group.

None of the above groups of claims stand or fall together with any other of the groups of claims as will become clear from a reading of the Argument that follows.

8. ARGUMENT

The rejection of claim 22 as being unpatentable over JP '397

Claim 22 corresponds to the first aspect of the invention as described in section 5 above.

The Examiner has finally rejected claims 22 - 28 and 33 - 36 under 35 U.S.C. 103(a) as being unpatentable over Mori et al. (JP '397). In finally rejecting claim 22 as being unpatentable over JP '397, the Examiner expressed that JP '397 discloses an insert film comprising an acrylic layer 2 and a color sheet 5, wherein acrylic layer 2 corresponds to the claimed "substrate sheet" and color sheet 5 corresponds to the claimed "backing sheet". The Examiner acknowledged that JP '397 does not teach characteristics (i) and (ii), and thus took the position that the insert film of JP '397 will necessarily possess or exceed the properties represented by characteristics (i) and (ii) of claim 22. In other words, the Examiner has taken the position that characteristics (i) and (ii) of claim 22 are inherent in the insert film of JP '397. In support of this position, the Examiner expressed that JP '397 teaches an insert film including a methyl methacrylate (acrylic) layer and a polyacrylonitrile-butadiene-

styrene (ABS) layer, which layers are similar to the layers used to form the decorating sheets disclosed in the table on page 20 of the substitute specification.

However, to establish inherency, it must be made clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill in the art. Inherency may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient. *In re Robertson*, 169 F.3d 743, 745, 49 USPQ2d 1949, 1950-51 (Fed. Cir. 1999).

And, in relying upon the theory of inherency, the examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art. *Ex parte Levy*, 17 USPQ2d 1461, 1464 (Bd. Pat. App. & Inter. 1990).

Accordingly, in order for the inherency rejection to be proper, the Examiner was required to demonstrate that characteristics (i) and (ii) as recited in claim 22 necessarily flow from the teachings of JP '397. This demonstration has not been made by the Examiner. Indeed, because of the various types of methyl methacrylate material and ABS material (as acknowledged by the Examiner in section 11 of the Final Rejection), and because of the generic manner by which these materials are described in JP '397, it is respectfully submitted that it cannot be shown that characteristics (i) and (ii) of claim 22 necessarily flow from JP '397. That the materials used for the inset film of JP '397 are similar to those used for Appellant's decorating sheet is not sufficient to demonstrate that characteristics (i) and (ii) of claim 22 are inherently possessed by the insert film of JP '397.

Thus, the Examiner has taken the position that because JP '397 discloses layers (which form the insert film) that are identical or substantially identical in structure or composition to the substrate sheet and backing sheet that form the decorating sheet of the instant invention (i.e. a layer of a methyl methacrylate film and an ABS layer), a *prima facie* case of either anticipation or obviousness has been established and the burden of proof has been shifted to Appellant to show that the prior art insert film of JP '397 does not necessarily or inherently possess characteristics of the claimed decorating sheet in order to overcome the rejection.

It is respectfully submitted, however, that the Examiner has not provided a sound basis for believing that the insert film of JP '397 and the decorating sheet of the instant invention are identical or substantially identical in structure or composition, and thus the burden remains on the Examiner to show that the properties of the decorating sheet as recited in claim 22 necessarily flow from JP '397.

In this regard, the Examiner's basis for concluding that the insert film of JP '397 is identical or substantially identical in structure or composition to the decorating sheet as recited in claim 22 is stated to be that the layers making up this insert film are of similar material to that of the backing sheet and substrate sheet that make up Appellant's decorating sheet. However, because various types of methyl methacrylate material are different from one another in terms of structure and composition, because various types of ABS material are different from one another in terms of structure and composition, and because the decorating sheet as recited in claim 22 is sought for a purpose not discussed in JP '397, it is respectfully submitted that there is no reason to believe that the insert film of JP '397 is identical or substantially identical in structure or composition to the decorating sheet as recited in claim 22.

That is, decorating sheets which have molded thereto resin via an injection molding operation are generally known in the art; however, suffer from drawbacks as follows.

First, where the decorating sheet is made from a material such as pure ethylene-vinyl acetate film, there has been a problem in that heat of molten resin injected during an injection molding process is applied to the decorating sheet, which causes the decorating sheet to be stretched along flow of the molten resin, leading to breakage of the decorating sheet.

Second, where the decorating sheet is made from a material having high heat resistance and high elongation resistance, such as biaxially oriented polyethylene terephthalate, polyimide, polyether etherketone, polysulfone, polyethersulfone, polyetherimide, or polyamide-imide films, there has been a problem in that it is difficult to work the decorating sheet into a three-dimensional configuration. Specifically, the more deeply the decorating sheet is drawn, the more difficult it is to work the decorating sheet into a three-dimensional configuration.

Third, where the decorating sheet is made from a material having low rigidity, the decorating sheet is liable to not maintain its three-dimensional configuration, resulting in a lowered configuration retainability. In such a case, there has been a problem in that it becomes difficult to process the decorating sheet for trimming or in-mold decorating.

Thus, a purpose of the decorating sheet including properties (i) and (ii) as recited in claim 22 is to provide a decorating sheet that will not break during an injection molding operation when subjected to heated molten resin, and which can easily be worked into a maintainable three-dimensional configuration. To the contrary, the insert film of JP '397, i.e. layer 2 and colored sheet 5, is of such characteristics that the sheet does not become significantly stretched during an injection molding operation such that respective colors of the base layer and colored layer are mutually homologous (please see paragraphs [0003] - [0007] of JP '397). JP '397 is silent with regard to having the decorating sheet be of a characteristic such that it can be easily worked into a maintainable three-dimensional configuration. Because of the different purposes of the insert film of JP '397 and the decorating sheet of claim 22, there is no reason to believe that the structure or composition of the insert film of JP '397 will be identical or substantially identical to that of the decorating sheet of claim 22.

Accordingly, the different purposes of the insert film of JP '397 and the decorating sheet of claim 22, coupled with different compositions and structures of various types of methyl methacrylate and ABS material, demonstrate that there is no reason to believe that the insert film of JP '397 and the decorating sheet of claim 22 are identical or substantially identical to one another in terms of composition and structure. Thus, the burden has not been shifted to Appellant to show that the prior art insert film of JP '397 does not necessarily or inherently possess characteristics of the claimed decorating sheet in order to overcome the rejection. The burden remains on the Examiner to show that the properties of the decorating sheet as recited in claim 22 necessarily flow from JP '397.

This burden has not been met, and accordingly, claims 22 - 28 and 33 - 36 are allowable over JP '397.

The rejection of claim 39 as being unpatentable over JP '397 in view of JP '085

Claim 39 corresponds to the second aspect of the invention as described in section 5 above.

The Examiner has finally rejected claims 39 and 40 under 35 U.S.C. 103(a) as being unpatentable over Mori et al. (JP '397) in view of Kitamura et al. (JP '085). In finally rejecting claim 39 as being unpatentable over JP '397 in view of JP '085, the Examiner expressed that characteristics (i) and (ii) of the decorating sheet produced by the method of claim 39 are inherently disclosed by JP '397. For reasons analogous to those expressed above with regard to claim 22, the Examiner has not provided the necessary requirements for supporting an inherency rejection of claim 39. JP '085 does not resolve this deficiency, and accordingly, claims 39 and 40 are allowable over JP '397 in view of JP '085.

The rejection of claim 41 as being unpatentable over JP '397 in view of JP '085

Claim 41 corresponds to the third aspect of the invention as described in section 5 above.

The Examiner has finally rejected claims 41 and 42 under 35 U.S.C. 103(a) as being unpatentable over Mori et al. (JP '397) in view of Kitamura et al. (JP '085). In finally rejecting claim 41 as being unpatentable over JP '397 in view of JP '085, the Examiner expressed that characteristics (i) and (ii) of the decorating sheet produced by the method of claim 41 are inherently disclosed by JP '397. For reasons analogous to those expressed above with regard to claim 22, the Examiner has not provided the necessary requirements for supporting an inherency rejection of claim 41. JP '085 does not resolve this deficiency, and accordingly, claims 41 and 42 are allowable over JP '397 in view of JP '085.

The rejection of claim 43 as being unpatentable over JP '397

Claim 43 corresponds to the fourth aspect of the invention as described in section 5 above.

The Examiner has finally rejected claim 43 under 35 U.S.C. 103(a) as being unpatentable over Mori et al. (JP '397). In finally rejecting claim 43 as being unpatentable over JP '397, the Examiner expressed that characteristics (i) and (ii) of the decorating sheet used to produce the article of claim 43 are inherently disclosed by JP '397. For reasons analogous to those expressed above with regard

to claim 22, the Examiner has not provided the necessary requirements for supporting an inherency rejection of claim 43, and accordingly, claim 43 is allowable over JP ' 397.

9. APPENDIX.

A copy of the claims on appeal is set forth in an Appendix immediately following the conclusion and signature, and is incorporated herein by reference.

CONCLUSION.

This brief is submitted in triplicate with the requisite fee of $330.00.

Respectfully submitted,

Fujio MORI

By _____

Joseph M. Gorski
Registration No.46,500
Attorney for Appellant

JMG/edg
Washington, D.C.
Telephone (202) 721-8200
Facsimile (202) 721-8250
June 17, 2004

9. APPENDIX - Claims on Appeal.

22. A decorating sheet, having high three-dimensional workability, for use in the production of an article that is produced by the process of

positioning the decorating sheet in an injection mold,

closing the injection mold,

injecting molten resin into the injection mold, and

cooling and solidifying the molten resin into a solid body such that all or part of the decorating sheet is integrally bonded to the solid body,

wherein the decorating sheet includes at least a substrate sheet and a backing sheet, exhibits a colored condition, and has the following characteristics

(i) when a 10 mm wide test specimen of the decorating sheet is fixed between a pair of chucks at a chuck-to-chuck distance of 5 mm and then a load is applied at a constant rate of 500 mm/min to the test specimen at one end thereof under a temperature of from 62°C to 94°C, the test specimen exhibits a tensile strength at breakage thereof of at least 23 gf, and

(ii) properties of the decorating sheet change in response to being subjected to a temperature from 40°C to 200°C, and when a 10 mm wide test specimen of the decorating sheet is fixed between a pair of chucks at a chuck-to-chuck distance of 5 mm and then a load of 20 gf is applied at a constant rate of 500 mm/min to the test specimen at one end thereof under a temperature from a first temperature within the range from 40°C to 200°C to a second temperature at which the decorating sheet decomposes, the test specimen exhibits a tensile elongation at breakage of at least 130%.

23. The decorating sheet according to claim 22, wherein

the process of producing the article further includes working the decorating sheet into a three-dimensional configuration and removing therefrom portions that are unnecessary, thereby providing a three-dimensionally worked decorating sheet,

positioning the decorating sheet in an injection mold comprises positioning the three-dimensionally worked decorating sheet in the injection mold,

cooling and solidifying the molten resin into a solid body such that all or part of the decorating sheet is integrally bonded to the solid body comprises cooling and solidifying the molten resin into a solid body such that all or part of the three-dimensionally worked decorating sheet is integrally bonded to the solid body, and

the decorating sheet has a characteristic that when a 10 mm wide test specimen of the decorating sheet is fixed between a pair of chucks at a chuck-to-chuck distance of 5 mm and then a load is applied at a constant rate of 500 mm/min to the test specimen at one end thereof under a temperature of 25 C, a product of Young's modulus and a cube of thickness of the decorating sheet, measured at a time of applying the load, is at least 1 kgfmm.

24. The decorating sheet according to claim 22, wherein the decorating sheet has a pencil hardness value of 3B - 2H on a side thereof that is opposite to a side that is to be bonded to the resin.

25. The decorating sheet according to claim 24, wherein the substrate sheet comprises a film selected from the group consisting of undrawn or lightly-drawn polyethylene terephthalate film, noncrystalline or low-crystalline polyester copolymer film, acrylic film, polycarbonate film, polypropylene film, polybutylene terephthalate film, polystyrene film, polyurethane film, acrylonitrile butadiene-styrene copolymer film, nylon film, polyvinyl chloride film, fluoric film and cellulose acetate film.

26. The decorating sheet according to claim 22, wherein a thickness of the decorating sheet is not less than 250 μm, a thickness of the decorating sheet excluding a thickness of the backing sheet is at most 200 μm, and color of the backing sheet is dark and falls within the following ranges in the CIE1976(L*a*b*) color system

(i) $9 < L^* < 75$,

(ii) $-40 < a^* < 40$, and

(iii) $-60 < b^* < 30$.

27. The decorating sheet according to claim 26, wherein the backing sheet comprises a film selected from the group consisting of undrawn or lightly-drawn polyethylene terephthalate film, noncrystalline or low-crystalline polyester copolymer film, acrylic film, polycarbonate film, polypropylene film, polybutylene terephthalate film, polystyrene film, polyurethane film, acrylonitrile butadiene-styrene copolymer film, nylon film, polyvinyl chloride film, fluoric film, polyethylene film, methacryl-styrene copolymer film and nitrocellulose film.

28. The decorating sheet according to claim 22, wherein the backing sheet is of a material that prevents vaporization and foaming.

29. The decorating sheet according to claim 22, wherein a difference between a shrinkage factor of the substrate sheet and a shrinkage factor of the backing sheet is from 0/1000 to 8/1000.

30. The decorating sheet according to claim 29, wherein the substrate sheet comprises an acrylic film and the backing sheet comprises a polypropylene film containing olefin rubber and a filler material.

31. The decorating sheet according to claim 30, wherein the olefin rubber comprises ethylene propylene rubber or ethylene-propylene-diene terpolymer, and the content of the olefin rubber is from 20 to 150 parts by weight based on 100 parts by weight of propylene resin.

32. The decorating sheet according to claim 30, wherein the filler material comprises talc, and the content of the filler material is from 5 to 20 parts by weight based on 100 parts by weight of propylene resin.

33. The decorating sheet according to claim 22, further comprising a first pattern layer between the substrate sheet and the backing sheet.

34. The decorating sheet according to claim 33, further comprising a second pattern layer between the first pattern layer and the backing sheet.

35. The decorating sheet according to claim 34, wherein material of the substrate sheet comprises a vaporizable and foamable material, and material of the second pattern layer comprises a material that prevents vaporization and foaming.

36. The decorating sheet according to claim 35, wherein the material of the second pattern layer is selected from the group consisting of polyethylene resin, polypropylene resin, styrene resin, fire-retardant ABS resin, and thermoplastic polybutadiene resin.

37. The decorating sheet according to claim 22, wherein the backing sheet comprises a lamination of plural sheets, and a difference between a shrinkage factor of the substrate sheet and a shrinkage factor of the one of the plural sheets that is farthest from the substrate sheet is from 0/1000 to 8/1000.

38. The decorating sheet according to claim 37, wherein the plural sheets comprise plural polypropylene films, the substrate sheet comprises an acrylic film, and at least the one of the plural polypropylene films that is farthest from the acrylic film contains olefin rubber and/or a filler material.

39. A method for manufacturing a decorating sheet having high three-dimensional workability, for use in the production of an article that is produced by the process of

positioning the decorating sheet in an injection mold,

closing the injection mold,

injecting molten resin into the injection mold, and

cooling and solidifying the molten resin into a solid body such that all or part of the decorating sheet is integrally bonded to the solid body,

wherein the decorating sheet has the following characteristics

(i) when a 10 mm wide test specimen of the decorating sheet is fixed between a pair of chucks at a chuck-to-chuck distance of 5 mm and then a load is applied at a constant rate of 500 mm/min to the test specimen at one end thereof under a temperature of from 62°C to 94°C, the test specimen exhibits a tensile strength at breakage thereof of at least 23 gf, and

(ii) properties of the decorating sheet change in response to being subjected to a temperature from 40°C to 200°C, and when a 10 mm wide test specimen of the decorating sheet is fixed between a pair of chucks at a chuck-to-chuck distance of 5 mm and then a load of 20 gf is applied at a constant rate of 500 mm/min to the test specimen at one end thereof under a temperature from a first temperature within the range from 40°C to 200°C to a second temperature at which the decorating sheet decomposes, the test specimen exhibits a tensile elongation at breakage of at least 130%, said method comprising:

forming a pattern layer on one of a backing sheet and a substrate sheet by laminating a carrier sheet, exhibiting a dimensional change of within 0.6% under a temperature of 90°C, onto the one of the backing sheet and substrate sheet; and

covering the pattern layer with the other of the backing sheet and the substrate sheet such that the pattern layer is between the substrate sheet and the backing sheet.

40. The method according to claim 39, wherein laminating a carrier sheet, exhibiting a dimensional change of within 0.6% under a temperature of 90°C, onto the one of the backing sheet and substrate sheet comprises laminating a biaxially oriented polyester film or a biaxially oriented polypropylene film onto the one of the backing sheet and substrate sheet.

41. A method for manufacturing a decorating sheet having high three-dimensional workability, for use in the production of an article that is produced by the process of

positioning the decorating sheet in an injection mold,

closing the injection mold,

injecting molten resin into the injection mold, and

cooling and solidifying the molten resin into a solid body such that all or part of the decorating sheet is integrally bonded to the solid body,

wherein the decorating sheet has the following characteristics

(i) when a 10 mm wide test specimen of the decorating sheet is fixed between a pair of chucks at a chuck-to-chuck distance of 5 mm and then a load is applied at a constant rate of 500 mm/min to the test specimen at one end thereof under a temperature of from 62 °C to 94 °C, the test specimen exhibits a tensile strength at breakage thereof of at least 23 gf, and

(ii) properties of the decorating sheet change in response to being subjected to a temperature from 40 °C to 200 °C, and when a 10 mm wide test specimen of the decorating sheet is fixed between a pair of chucks at a chuck-to-chuck distance of 5 mm and then a load of 20 gf is applied at a constant rate of 500 mm/min to the test specimen at one end thereof under a temperature from a first temperature within the range from 40 °C to 200 °C to a second temperature at which the decorating sheet decomposes, the test specimen exhibits a tensile elongation at breakage of at least 130%, said method comprising:

transferring a pattern layer from a carrier sheet, exhibiting a dimensional change of within 0.6% under a temperature of 90 °C, to one of a substrate sheet and backing sheet by

(i) laminating onto the one of the substrate sheet and backing sheet the carrier sheet such that the pattern layer is between the carrier sheet and the one of the substrate sheet and backing sheet, and

(ii) removing the carrier sheet from the pattern layer; and

covering the pattern layer with the other of the backing sheet and the substrate sheet such that the pattern layer is between the substrate sheet and the backing sheet.

42. The method according to claim 41, wherein transferring a pattern layer from a carrier sheet, exhibiting a dimensional change of within 0.6% under a temperature of 90 °C, to one of a substrate sheet and backing sheet comprises transferring a pattern layer from a biaxially oriented polyester film or a biaxially oriented polypropylene film to the one of the backing sheet and substrate sheet.

43. A decorated article formed by the process of:

positioning a decorating sheet in an injection mold, wherein the decorating sheet includes at least a substrate sheet and a backing sheet, exhibits a colored condition, and has the following characteristics

(i) when a 10 mm wide test specimen of the decorating sheet is fixed between a pair of chucks at a chuck-to-chuck distance of 5 mm and then a load is applied at a constant rate of 500 mm/min to the test specimen at one end thereof under a temperature of from 62°C to 94°C, the test specimen exhibits a tensile strength at breakage thereof of at least 23 gf, and

(ii) properties of the decorating sheet change in response to being subjected to a temperature from 40°C to 200°C, and when a 10 mm wide test specimen of the decorating sheet is fixed between a pair of chucks at a chuck-to-chuck distance of 5 mm and then a load of 20 gf is applied at a constant rate of 500 mm/min to the test specimen at one end thereof under a temperature from a first temperature within the range from 40°C to 200°C to a second temperature at which the decorating sheet decomposes, the test specimen exhibits a tensile elongation at breakage of at least 130%;

closing the injection mold,

injecting molten resin into the injection mold, and

cooling and solidifying the molten resin into a solid body such that all or part of the decorating sheet is integrally bonded to the solid body.